Investigation of the impacts of physical environment on teacher-child communication

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This study was carried out to reveal the effects of physical environment in pre-school education on teacher-child communication. The sample of the study is composed of 42 nursery classes and their teachers in primary schools affiliated with Konya Provincial Directorate of National Education. The study was conducted in survey model. In the study, "The Early Childhood Environment Rating Scale- the sub-dimensions of Classroom Space and Furnishings" was used to assess physical environment and "Teacher-Child Communication Questionnaire" which was developed by the researchers was used to assess teacher-child communication. The relation between physical environment and teacher-child communication was tested with Spearman Correlation. The results of the study revealed that teacher-child communication is a significantly related with ECER-S daily care, play and learning space sub-scale and furnishings for relaxation and comfort sub-scale.

Keywords: Physical environment, Teacher-child communication, Preschool education

Introduction

In new century, it is necessary to prepare children for future to achieve a modern and democratic society. In preparing them for future, the patterns of communication parents and teachers establish with children are of great importance (Çağdaş, 2000).

Communication is a process in which individuals transmit every kind of information about their experiences, emotions and ideas and receivers receive this message so as to create a common meaning (Deniz, 2003).

Every communication is realized in a medium. Medium of communication is the physical and social environment in which communication is realized. All individuals, objects and events in a communication occasion that feature characters that can influence process of communication are all called as a medium of communication (Cüceloğlu, 1993). A healthy communication medium provided to children affects communication to be established with them. Therefore, parents, teacher and other adults who communicate with children are to be adequately equipped with communication skills.

In teacher competencies list developed by Board of Higher Education, there are competencies related with teachers' communication skills. Board of Higher Education state that teachers are to be

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able to make clear explanations and give explicit instructions, ensure effective communication in the class, establish communication with school directors, colleagues, other school personnel, parents and other education institutions, use his/her tone of voice effectively, and have communication characteristics like using verbal language and body language effectively (Özdemir and Yalın, 2000).

Gürşimşek (1999) pointed out that teachers who do not give judgmental messages to students, give place to empathy in communication, and who avoid labeling children with various characteristics and express their feelings using I-language messages rather than you-language messages have effective communication skills (Cited in Gürkan, 2005).

In his study on competencies of teachers working in pre-schools, Isenberg (1979) states that teachers are to be knowledgeable about child development, program development, class management, children's personality characteristics and individual differences and are to establish good and quality communication with children (Cited in Kuru, 2000) because pre-school years is a period when foundations for all personality characteristics are laid down. Children identify themselves with their teachers and take them as role models.

At the same time, the environment in which communication takes place can positively or negatively affect communication process and establishment of communication. Many characteristics of environments such as illumination, temperature, being crowded or desolate, being indoor or outdoor can determine effectiveness of communication (Cüceloğlu, 1993).

For effective education process to take place, first of all a very good physical environment is to be prepared. Physical environment of classroom is composed of table and desks in the class, cupboards, educational materials, temperature, lightening, colors of the walls, noise, cleanness, harmony in appearance etc. The environments in which people live affect people in various aspects. It is impossible for effective communication to take place in a poorly illuminated and heated class in cold weather conditions (Şişman, 2000).

Pastalozzi (1746–1827) emphasizes the importance of physical environment by pointing out that it is neccessary to provide children with neccessary exercises so that they can develop their skills the best way possible and to prepare environments in which these exercises can be realized (Cited in Ramazan, 2005). In many studies, it was revealed that physical environments contributed to children's different development areas and influenced their perception, learning, cooperation behaviors and children were more sensitive to stimulants in these environments (Maxwell, 2007; Musburn, 2008; Musburn, Pianta et al, 2008; Kıldan, 2007; Read, Sugawara and Brant, 1999). Therefore, in preparation of educational environments in pre-school institutions, it is important to attach importance to physical environment by considering that it can affect children's development, behavior, their relation with each other and adults, and their learning. In today's world in which standards in many areas have been set, physical conditions for pre-school conditions have been set as well. Doubtlessly, it is very natural that there are some differences in schools to correspond with individual differences each person has; however, these differences are to observe standards determined to meet common basic needs (Ramazan, 2005).

Educational environments are to be designed considering that children spend most of their time here and to enable them play on their own or behave with group as neccessary. Educational spaces are to be spaces where children move freely and meet their own needs easily. Furniture like table, chair, and desks are to be suitable with children's sizes and shelves and cupboards are to be at their eye level. Furnishing is to be suitable, made of natural materials, qualified, safe and economic. Furniture is to be demountable, portable, and suitable for multiple purposes. Education spaces are to feature interest corners which include their own toys and materials. To design different interest

corners, elevation difference and flooring material difference are to be considered. Space division elements or shelves can be used to divide corners from each other. Place of a corner in the space is to be determined according to level of noise. Book reading, science, nature corners which require concentration are to be placed close to each other and in relatively silent and illuminated side of a room which is not in the way. Noisy corners like blocks and play house corners are to be far from corners which require concentration. Restrooms are not to be directly linked with learning spaces.

As children continuously change places, illumination is very important and difficult. Illumination shows difference according to the activities in spaces. The most suitable level of illumination is to be provided by designing space according to illumination estimations and by considering positioning of windows according to sunlight, reflection characteristics of various surfaces and the colors of the inner space materials according to climate and directional conditions. Heat distribution in the building is to be equal and it must feature air-conditioning facility and temperature is to be adjusted to the activity in the space, clothing conditions and time and duration when space is used. The mean temperature of inner spaces is to be between 18 and 20 C and humidity is to be 35%. The walls are to be light colored and feature hygienic, easy to clean and impact-resistant materials. Windows are to be at suitable heights so that children can see outside environment. The doors are to be opened from inside to outside and for windows and doors wooden materials are to be preferred to plastic. The flooring is to be according to the purpose of space and excluding wet floors, floors are to be wooden parquet. Children play grounds are to feature soft and hard spaces (Acer, 2007; Aktaş Arnas, 2008; Uysal, 2006; Solak, 2007; Poyraz, 2001; Demiriz, Karadağ and Ulutaş, 2003; Stankovic, Milojkovic and Tanic, 2006).

In a well-arranged environment, teacher's control in the class increases, which makes supervision easier. When teachers make a student-centered arrangement in education environment, the need for teacher decreases and teacher is set free from unnecessary efforts as there is less need for instructions and guidance. Well-equipped and neat education environment makes it easier for children and teachers to work. Teachers who are not busy with physical inadequacies in educational environment can spare more time for children and show more individual interest to them. Therefore, teachers communication and interaction with children increases (Demiriz, Karadağ and Ulutaş, 2003).

Although in the literature there are many studies on teachers' communication skills from the perspective of many variables and on physical conditions in pre-school education institutions, there is not a study which investigates teacher-child communication and the effects of physical environment on this communication. Therefore, there was a need for this study.

The aim of the study:

The general aim of this study is to investigate the effects of physical environment in pre-school institutions on teacher-child communication.

Sub Aims:

In line with general aims of the study, answers for the following questions were sought.

1. Is there a statistically significant relation between Teacher-Child Communication Questionnaire scores and the ECER-S Space and Furnishing Sub-Scale scores?

2. Is there a significant relation between Teacher-Child Communication Scores and the ECER-S Space and Furnishing Sub-scale's the following sub-dimension scores?

- Indoor space
- Furniture for Routine Care, Play and Learning
- Furnishings for comfort and relaxation
- Room Arrangement for Play
- Space for privacy
- Child-Related display
- Space for gross motor play
- Gross motor equipment?

Method

The model of the Study

This study was carried out in general survey model to determine relation between variables.

Sample

The sample of study is composed of 42 nursery classes of Primary schools affiliated with Konya Provincial Directorate for National Education and the teachers of these classes.

Instruments

In this study, "Teacher Children Communication Questionnaire" and "The Early Childhood Environment Rating Scale (ECERS-R)" were used.

Teacher Child Communication Questionnaire: In this study, "Teacher-Child Communication Questionnaire" which was developed by the researchers to identify the characteristics of communication teachers established with 6 year old children was used. In the preparation process, first the relevant literature was reviewed and items of the questionnaires were formed. Later on views of 3 filed experts were obtained and neccessary corrections were made. The questionnaire includes such items as "When I speak to my student, I do not interrupt but wait until his speech finishes; I use clear, understandable and simple questions when I speak with my student; When I speak with my student, I use expression which indicates that I understand his/her feelings and emotions". The questionnaire is composed of 33 questions and has 5-choice likert type answers including always, frequently, sometimes, rarely, never.

The Early Childhood Environment Rating Scale (ECERS-R): The scale was developed by Harms and Clifford (1980) and adapted into Turkish by Towim (1996) (Yazıcı, Yellice and Özer, 2003). In adaptation studies, Towim determined that means of observation results of these three researchers was 84,2. This coefficient indicates that the scale is highly reliable. In a study by Solak (2007), correlation coefficient for space and furnishing sub-scale was calculated to be .97.

The Early Childhood Environment Scale is composed of 7 sub-scales. However, in this study, "Space and Furnishing" sub-scale was used. The "Space and Furnishings" includes eight items. These are: 1. Indoor space, that is temperature, light, cleanness, arrangement characteristics etc.; 2. Furniture for routine care, play and learning, that is items related with the existence of adequate numbers of table and chairs and their robustness, 3. Furniture for relaxation and comfort, that is coaches, armchairs, cushions and saddles; 4. Class arrangement for play, that is arrangement of interest corners 5. Space for privacy, that is a space like cottage and mezzanine spared for a few children 6. Child-related display that is appropriate pictures, posters and display areas 7. Space for

gross motor play, that is space for plays that contribute to small and large muscle development 8. Materials for gross plays, that is toys for climbing, swinging, sliding and toys with wheels.

In the scoring page of the scale, results like yes, no and observed are marked and then proceeded to scoring. Items scores ranges between 1 (Very Inadequate) and 7 (Very Adequate). Certain criteria are observed for these ratings (Solak, 2007).

Data Collection and Analysis

The data of the study about physical environment were collected by the researcher via almost an hour of observation during visits to schools in the sample on pre-arranged dates and times. The Teacher- Child Communication Questionnaire was filled in by teachers and assessed by the researchers.

The relation between "The Teacher Child Communication Scale" scores and "ECER-S Space and Furnishing Sub-scale" and sub-dimensions of this sub-scale (Indoor space, Furniture for routine care, play and learning, Furnishings for relaxation and comfort, Room arrangement for play, Space for privacy, Child-related display, Space for gross motor play and Gross motor equipment) was tested with Spearman Correlation analysis.

Findings and Discussions

The age and service lengths of teachers in the sample are given in table 1 and table 2.

Table 1. Information about Teachers' Age

Age Intervals	20-30	31-40	41-50	51 and more	Total
Number of Teacher	12	18	10	2	42

As it can be seen in Table 1, 12 of the teachers in the study group are between 20-30 age intervals, 18 are in 31-40 age interval, 10 are in 41-50 age interval and 2 are 51 or more.

Table 2. Information about Teachers' Length of Service

Service Length	0-5	6-10	11-15	16-20	21 and more	Total
Number of teacher	7	15	11	6	3	42

As it is presented in Table 2, 7 of the teachers who took part in the study have a service length of 0 to 5 years, 15 have 6 to 10 years of service length, 11 have 11 to 15 years of service length, 6 have 16 to 20 years of service length and 3 have a service length of 21 years or longer.

Spearman Correlation values with regard to the relation between the Teacher-Child Communication questionnaire scores and ECER-S Space and Furnishing Sub-scale and its sub-dimensions are given in Table 3.

Table 3. Correlations among predictor and outcome variables

	1	2	3	4	5	6	7	8	9	10
1	-									
2	,28	-								
3	,40**	,71**	-							
4	,44**	,60**	,40**	-						
5	,13	,72**	,36*	,53**	-					
6	-,16	-,27	-,24	,00	,23	-				
7	,19	,51**	,55**	,44**	,46**	-,23	-			
8	-,37	,30*	,09	,14	,44**	,19	,33*	-		

| 9 | -,06 | -,39* | -,42** | ,02 | -,14 | ,20 | -,01 | -,08 | - | |
| 10 | ,27 | ,87** | -,64** | ,75** | ,79 | -,12 | ,73** | ,52** | -,10 | - |

Note: Correlations between teacher child communication and physical environment based on Spearman correlations. *p<.05 **p<.01. Variables was coded numerically in the table. Numerical equivalents of the variables: 1= teacher child communication, 2=Indoor space, 3=Furniture for routine care, play and learning, 4= Furnishings for relaxation and comfort, 5=Room arrangement for play, 6= Space for privacy, 7= Child-related display, 8= Space for gross motor play and 9= Gross motor equipment, 10= (Total) Space and Furnishing.

As it can be seen in Table 3, no significant relation was found between teacher child communication and indoor space (r= ,28), room arrangement for play (r=,13), space for privacy (r=-,16), child-related display (r=,19), space for gross motor play (-,37), and materials for gross motor play (r=-,06) sub-dimensions. Besides, there is not a significant relation between teacher child communication and all sub-dimensions (spacing and furnishing sub-scale r=, 27) (p>.05, p>.01).

This is an expected result because it becomes very difficult to control children in very wide spaces. In classes with a lot of materials, children are inclined to these materials and play games. This case decreases their needs for teacher. At the same time, in classes children pull away from activities and friends for some time and in spaces of privacy where they play alone their communication with the teacher decreases because children prefer these space when they want to be alone for a while and teachers respect their preference. Therefore, spaces of privacy are not a factor that can affect communication with the teacher positively. Materials for gross motor plays like climbing, sliding and swinging and the space for them contribute to the development of small and large muscles. Children discharge their energy and spend fun time. In this period, children are not in intensive communication with the teacher. Therefore, it is not surprising that this space and materials do not affect teacher-child communication.

In studies by Saracho (1989) and Wollhausen (1999), they reached to results that support the results of this study. The researchers investigated communication of children with teachers who work in places with large and neat education and play spaces which have adequate materials and concluded that this communication was not influenced by the size and arrangement of the space (cited in Poyraz, 2001).

Socio-cultural characteristics of communication environment and psychological moods of people in communication affect their interpretation of messages (Çağdaş, 2007). The age, length of service, personal characteristics, psychological moods of teacher, family structure and the number of children in the class, children's development levels, children's personal characteristics, socio-economic and cultural characteristics affect teacher-child communication.

Some studies which investigate the effects of these factors on teacher-child communication and their results are summarized below.

In a study, Şeker (2000) investigated the relation between teachers' communication skills and classroom atmosphere in terms of different variables. According to the results of the study, teachers with service length of 10 to 25 years had the best performance and graduates of teacher training schools had better communication skills. In another study, Günay (2003) examined teachers' perceptions of their own communication skills in terms of various variables and the results of this study revealed that teachers with service length of 21 years or more had higher perceptions of their communication skills compared to teachers with shorter length of service and teachers who worked in schools with higher socio-economic level had higher perception of their communication skills compared to those who worked in schools with lower socio-economic level. As a result of another

study, Alakoç (2005) determined that pre-teachers who worked half a day displayed better communication approach compared to those who worked full day. In a study Chung (2000) carried out on teachers of 52 children aged between 3 and 6, it was concluded that longer length of service positively affects effective teaching, family-teacher and child-teacher communication.

As it is presented in Table 3, study results indicate that there is a significant relation between teacher-child communication and routine care, play and learning sub-dimension (r=,40) and furniture for relaxation and comfort (r=,44) (p<.05, p<.01).

The practicality of the furniture in play and learning environment positively affects child and teacher communication because children listen to stories sitting on this furniture and do activities. Comfortable furniture makes them feel at home and thus children establish better communication with the teacher. In another study by Ök et al. (2002) it is emphasized that sitting arrangement and a lively classroom environment are important for communication in class (cited in Yılmazer, 2003).

The availability of soft-surface spaces for relaxation and comfort which can be used by children when they are tired and as they need affects teacher-child communication positively. Soft cushions, beds and comfortable coaches are places where children feel relaxed and rest, which is positively reflected in children's communication with the teacher.

Conclusion

It was concluded that space and furnishings do not influence teacher-child communication. This is an expected and desired conclusion. These results indicate that whether teachers work in a village school or in a city school which is perfect in terms of physical environment and equipment, they can communicate with children in the best way. This communication is not influenced by the indoor space, availability of a numbers of equipment and the existence of space for play and privacy.

Acknowledgement

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